METRON Innovative Solutions

QA-90MKII

The QA-90 represents a new generation of safety testing equipment. QA-90 is the only automatic safety tester that can test Instruments containing modules with different classes of protection in one test run (i.e. CF and BF - defibrillators). It is simple to use. All you need do is select the type and class of the equipment to be tested. When you press START, the QA-90 will execute the tests prescribed in the selected standard.

The test result can either be printed out immediately or stored internally in the unit for later use. The QA-90 can be fully remotely controlled via *ansur* QA-90 software. With *ansur*, you can make your own test protocols, store the information on disk and export formatted data to equipment management

QA-1290 NIBP ANALYZER

By using innovative new technology the QA-1290 NIBP Simulator accurately tests all types of adult and neonate oscillometric NIBP monitors. Before simulation, the QA-1290 can calibrate both the cuff and tubing in order to verify the NIBP monitor. Once the QA-1290 knows the working environment, it is able to perform calibrated simulations under all conditions.

The QA-1290 provides dynamic performance testing using both real and simulated blood pressure waveforms. Blood pressure waveforms include individual settings for systolic BP, diastolic BP, heart rate, and the pulse volume/amplitude. The QA-1290 Features: High performance, compact design, simple to use, Auto-calibration against all NIBP units, Real blood pressure waveforms settings, Real-life artifact and arrhythmia, Actual BP waveforms based on clinical data, Performs a complete test including cuff and tubing

QA-ES ELECTROSURGICAL ANALYZER

The QA-ES is developed for simple execution of tests on high-frequency surgical equipment in accordance with national and international standards including IEC 601.2.2, EN 60601.2.2, and ANSI/AAMI HF18.

QA-ES is unique in that it can automatically execute a power distribution test with a load resistance ranging from 10 ohm to a maximum of 5200 ohms. The automatic measuring of the QA-ES including crest factor measurements with a bandwidth of 10 MHz, ensure that the test result is reliable and reproducible. The test result can either be printed directly from the analyzer or transferred to a PC via PRO-Soft QA-ES remote control software.

QA-PT PARAMETER TESTER

Using the newest technology, QA-PT provides both high accuracy and performance for calibration or test of medical and industrial devices.
It is a versatile test instrument able to measure multiple parameters. Basic parameters cover differential pressure, vacuum and temperature measurements. Gas flow, barometric pressure and humidity measurements are included in the enhanced QA-PT model 2. Features: compact design, Reliable measurements high accuracy, Pressure and Vacuum measurements with peak hold, Barometric Pressure measurements, Temperature measurements and Gas Flow.

QA-IDS INFUSION PUMP TESTER

QA-IDS Infusion Pump Tester completes tests according to national and international standards. This includes taking flow measurements every 30 seconds so that the measurements are independent of the infusion pump's flow rate. QA-IDS is capable of detecting volume variations of 0.72 µl in a range of 0.10 ml/h - 1000.0 ml/h. QA-IDS can test all types of infusion pumps. It carries out flow tests, bolus tests and occlusion alarm tests. Features: Very high accuracy and resolution, High sampling rate, sudden flow change (minimum volume detection: 0.7µl) . Generates a user-defined pressure to load the infusion pump during test: -200mmHg to +600mmHg.

IAGU 2 CANNEL INFUSION PUMP TESTER

Iagu Infusion Pump Tester completes tests according to IEC 601.2.24 standard. This includes taking flow measurements every 30 seconds so that the measurements are independent of the infusion pump's flow rate. ***Iagu*** is capable of detecting volume variations of 0.18 µl in a range of 0.10 ml/h - 1000.0 ml/h. ***Iagu*** is a true dual channel infusion pump tester. Each channel is operated independently using its own measuring system. ***Iagu*** can test all types of infusion pumps. It carries out flow tests, bolus tests and occlusion alarm tests.

PRO-Soft ***Iagu*** software lets you to remotely control the tester from a PC. It allows you to create automated test sequences, run the tests, print the results, and/or store them to disk. With PRO-Soft ***Iagu***, you may automatically test infusion pumps over long periods and against various loads.

SPO2 PROBE ANALYZER

The SpO2 Probe Analyzer provides simple accurate tests for all types of SpO2 probes. The analyzer tests photodiode response to red and infrared LEDs and performs a continuity test of circuits. Red, infrared and photodiode circuits are each tested. For both tests there are two test types, one short test (1 sec) and one long glitch test (30 sec). The long test can be aborted at any time. Test results are displayed via a 7-segment display with 10 different messages. There is also a RS-232 connection to PC, and connectors to the probe. For other types than Ohmeda and Nellcor probes adapters are used.

DAEG SPO2 ANALYZER

The daeg SpO2 Analyzer provides simple and accurate testing of your Pulse Oximeters. The Analyzer does not only perform SpO2 tests, it also provides an electrical probe test and measures the quality of the IR and red LEDs.
The SpO2 Analyzer simulates a variety of patient conditions to test most modern oximeters. New models of oximeters can easily be added to the unit's menu.

The finger probe concept gives excellent performance at a low cost. Probes are calibrated as standalone units, and therefore moveable between host units. With PRO-Soft software, you can easily create your own test protocols, store test results to disk, and recall tests and results for future use.

DAEG features: Compact design, Graphical display with backlighting, 5 lead simulations of ECG, Probe test (With adaptor box), Simple interactive procedure for generation of new R-curves and templates. Large flash memory for storage of hundreds of downloaded R-curves.

QA-45 DEFIBRILLATOR/PACER ANALYZER

The QA-40M is a defibrillator analyzer developed for testing all external defibrillators. The unit may operate as a powerful standalone device or may be incorporated into an automated PC-based and remotely controlled. The test results can either be written directly to a printer from the QA-45, or they may be transferred to *ansur* QA-45 test automation software.

The QA-45 features: Biphasic energy measurement, Energy and cardioversion measurement, Peak voltage and current reading, Storage and playback of output waveform,12 lead ECG simulation, ECG, Performance and Arrhythmia simulation, Automatic defibrillator test procedures, Pacemaker loads from 50 ohm to 2300 ohm, Accuracy Tests: Amplitude, Rate, Pulse width, Demand Sensitivity Tests; Amplitude, Rate, Pulse width, Square, Triangle, Haversine, Sensed Refractory Period, Paced Refractory Period60/50 Hz Immunity Test. Pulse Energy, Large graphic display, RS-232C and Centronic printer interface.

QA-40M DEFIBRILLATOR ANALYZER

The QA-40M is a defibrillator analyzer developed for testing all external defibrillators. The unit may operate as a powerful standalone device or may be incorporated into an automated PC-based and remotely controlled.

The test results can either be written directly to a printer from the QA-40M, or they may be transferred to *ansur* QA-40M/45 test automation software.

The QA-40M features: Biphasic energy measurement, Energy and cardioversion measurement, Peak voltage and current reading, Storage and playback of output waveform, 12 lead ECG simulation, ECG, Performance and Arrhythmia simulation, Automatic defibrillator test procedures, Large graphic display, RS-232C and Centronic printer interface.

PS-320 FETAL SIMULATOR

Cardiotocographs or Electronic Fetal Monitoring ("EFM") is a diagnostic tool used to identify a fetus at risk for neurological injury or death, so that timely and appropriate intervention can be carried out before the underlying condition causes irreversible damage. The PS-320 provides comprehensive simulation of fetal and maternal ECG as well as uterine activity. It can simulate several fetal parameters, including twins, via monitor modes as DECG and ultrasound. With the optional Mechanical Heart you can test any fetal monitor's ultrasound cable and transducer using heart sounds.

PS-320 offers an easy user interface providing a 2 x 16-character LCD display with adjustable contrast.

The unit runs on a 9V battery. It provides an indication when battery is low and shuts down. It also supplies RS232 two-way data communication that is used to control the selections of the unit. The RS232 can also provide information regarding the status of the PS-320.

PS-410 PATIENT SIMULATOR

This Metron patient simulators has incorporated all the features and even greater quality and accuracy than that found in larger, bulkier units. The PS-410 features: Compact, Lightweight, Pocket Size, Easy top panel control, 12 Lead ECG, Adult and Pediatric Normal Sinus Rhythms, 35 Arrhythmias, ECG Performance Waveforms, ST Segment Levels, ECG Artifact, Pacemaker Simulation

JMB BIOMED INTERNATIONAL, INC.
TEL. 305.597.0898 ☎ FAX. 305.718.8819

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CATALOGO 2004

PS-420 PATIENT SIMULATOR

Metron's PS-420 patient simulator is the smallest, most power-packed, cost effective, patient simulator on the market. The PA-420 features: Compact, Lightweight, Pocket Size design. Labeled Hot Keys for Common Settings. Simulates 12 Lead ECG, Respiration, Temperature, 2 Channel Blood Pressure Simulations, Cardiac Output (optional) Adult and Pediatric Normal Sinus Rhythms, 37 Arrhythmias, ECG Performance Waveforms, ST Segment Levels, ECG Artifact, Pacemaker Simulation. Includes RS-232 Interface.

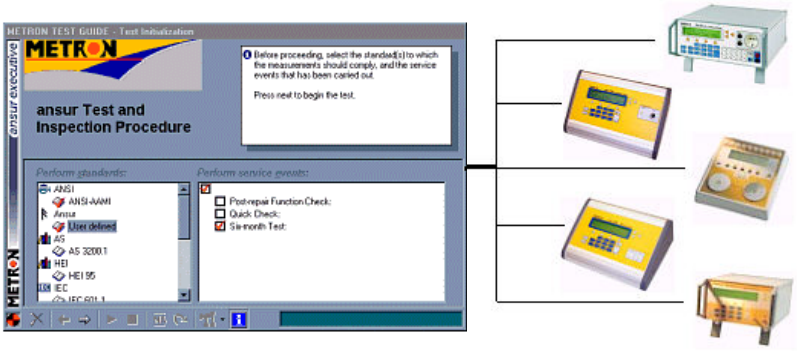
PS-440 PATIENT SIMULATOR

Metron's PS-440 patient simulator is the smallest, most power-packed patient simulator on the market. The PA-440 features: Compact, Lightweight, Pocket Size design. Labeled Hot Keys for Common Settings. Simulates 12 Lead ECG, Respiration, Temperature, 4 Channel Blood Pressure Simulations, Cardiac Output (optional) Adult and Pediatric Normal Sinus Rhythms, 37 Arrhythmias, ECG Performance Waveforms, ST Segment Levels, ECG Artifact, Pacemaker Simulation. Includes RS-232 Interface

QA-30 PACEMAKER ANALYZER

- QA-30 is an advanced microprocessor based, compact, high performance, external pacemaker tester designed for accurate testing of all types of external pacemakers, including invasive and transthoracic. The device is menu-driven and simple to operate. All functions are set from a 2-line, 16-character LCD display and a keypad with 8 tactile keys. QA-30 provides superior accuracy and performance .

ANSUR TEST AUTOMATION SOFTWARE



ansur Test Automation Software is the evolution of Metron's PRO-Soft software family. It is the backbone for Metron's current and future automated test systems. ***ansur*** is a test executive that handles all steps of your test procedures by allowing a mixture of manual/visual tests and automated test sequences. The software is designed to work hand-in-hand with Metron analyzers and simulators as an application where visual inspections, preventative maintenance procedures, performance tests, and safety tests for any device can be performed and stored from one file. The test procedures are stored in Test Template or Test Sequence files (XML format) and the results are stored in Test Result files (also in XML format), which may be viewed and printed with three different detail levels.

QA-VTM VENTILATOR TESTER

QA-VTM offers many unique features for verifying the performance of infant, pediatric, and adult mechanical ventilators (breathing machines). Unlike any other tester, QA-VTM makes it easy to add a test load (lung simulation) to the test system without corrupting the results.

Ventilation parameters including breath rate, inspiratory and expiratory timing, I.E. ratio, flow rates, tidal volume, and airway pressure can be checked. Flow, pressure, and volume measurements can also be independently made. For the purposes of troubleshooting or verifying operation, a Trend Test can be selected and performed. This test allows you to run a ventilator for up to 48 hours on the QA-VTM and record key ventilation measurements.
For greater automation and enhanced viewing of the test data, you may want to utilize the PRO-Soft QA-VTM test software. With PRO-Soft you can remotely control the unit, create and save unique test sequences for each brand or model of ventilator, perform automated tests, and print the results and/or store them to disk. PRO-Soft also allows viewing of pressure, volume, and flow waveforms, which can be useful in diagnosing problems or validating a ventilator's own on-screen display.

- Unique Doppler Measuring Technology - Patent Pending
- Independent of gas agents used for testing: O2, Air, N2O or mixtures
- Tests High Frequency Ventilators (Breath Rates from 0 to 600 BPM - 10 Hz)
- Tests with or without optional test loads (simulated lungs)
- Simultaneous display of multiple parameter (e.g. rate, volume, flow, PEEP)
- Test infant, pediatric, and adult ventilators Trend testing - up to 48 hours (with PRO-Soft)
- High accuracy and resolution
- Simple to operate
- Centronics printer interface / RS-232 computer interface
- User-defined test protocols using PRO-Soft QA-VTM
- Pressure, flow, and volume wave forms using PRO-Soft QA-VTM

QA-ST ELECTRICAL SAFETY ANALYZER

The QA-ST is designed to quickly check electrical safety on medical and industrial devices. It is palm sized and very portable. The tests can be performed manually or in step by step mode.

The results are displayed in a bright 4-digit LCD display. The QA-ST performs all electrical safety tests necessary to satisfy AAMI ESI, NFPA-99, VDE 751, and partially IEC60601.1. It also features residual current measurements obtained by an internal current clamp. This presents a new leakage current measurement technique for convenient testing of medical equipment.

The QA-ST features: Operating voltage from 100, 115, or 240 V (50-60Hz), Power configuration test, Supply Voltage measurements, Current Consumption, Ground wire resistance, Ground, chassis, and patient leakage current, Lead Isolation test, Lead to Lead leakage current, Direct leakage current, Test loads: AAMI/ANSI ES1-1985 or IEC 60601.1, RS-232 Standard feature, Automation with ansur test integration software.

RespiCal™

Timeter by Allied

For more than a decade, health care professionals have depended on the RT 200 for day-in-day-out performance. Today, the workhorse RT 200 has a worthy successor — the RespiCal™ by Allied Healthcare. It offers so many new applications, it represents more of a revolution than an evolution.

Consider how the **new** and enhanced capabilities of the RespiCal™ can help you deliver better care, more effectively and productively than ever before possible.

Stand-alone operation or use with a Windows 95® personal computer.

Both numeric and graphic displays of any two real time measure ments simultaneously. High pressure, low pressure, high flow, low flow. oxygen percentage or 0 to 10V external input.

All information can be documented and stored electronically for monitoring and record-keeping.

In stand alone mode, RespiCal™ can measure pressures, flows, volumes, barometric pressure, oxygen concentration, breath calculations and voltages from many devices.

Plus, the operator uses only four keys to control the unit.

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4E & 4EC RADIATION MONITORS

The 4E y 4EC monitors, provide a cost effective alternative for monitoring ionizing radiation. Model 4E is ideal for the measurements of alpha, beta, gamma and x-ray radiation. The 4EC provides precise measument of high energy radiation (above 40 keV). Both instruments are accurate to within 10% of reading (referenced to Cesium-137). Both models feature an analog meter calibrated in mR/hr. Carrying case and batteries are included. Both units operate aproximately 2000hours/9V battery.

DIGILERT

Digilert is a monitoring system with a built in alarm, to alert personnel is the radiation levels in an area exceed a programmed number of counts per minute or a cumulative dose. The user can specify the alarm level form 0-9990 counts per minute. Digilert can be used to monitor alpha, beta, gamma and x-ray radiation.Carrying case and batteries are included. The unit operates aproximately 2000hours/9V battery. Two interface outputs are provided for connection to other alarm systems (compatible with TTL and CMOS)

TEST EQUIPMENT/EQUIPO DE PRUEBA

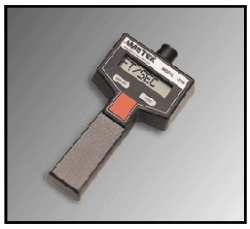
PMA1

Testing for an entire range of external pacemakers The PMA-I has been specifically designed for use with all external cardiac pacemakers including invasive and non-invasive (transthoracic) types. Its comprehensive range of tests and simulations will meet the needs of all cardiac units.

Features: Hand held portability, All necessary test leads, Large 2 line LCD Comprehensive test ranges, Replaces 5 separate test devices.

- **Includes cables, manual and 1 year warranty.**

1726 - DIGITAL TACOMETER



The Model 1726 Hand-Held Digital Tachometer is a dual-function instrument providing contact and non-contact measurement of rotational and linear motions. With an accuracy of +035% of indicated reading. the 1726 is ideal for use in production, engineering, inspection, quality control and maintenance. The Model 1726 comes complete with a convex tip and 10 cm linear measuring wheel. Contact or non-contact measurement. Eight-character display with floating decimal point, Four memories- last, minimum, maximum, and average readings. Units of measure available: Revolutions/sec., min., hr; Inches/sec., min., hr; Feet/sec., min, hr; Yards/sec., min., hr; Miles/hr; Centimeters/sec. and Meters/min., hr. **Includes heads, carry case, units chart, manual and 1 year**

X74345

Instant measurement of light output

The Bio-Tek Phototherapy Radiometer Model 74345 is designed to accurately measure light radiation in the blue part of the spectrum from 429-473 nanometers. Phototherapy exposure in this range is used to treat hyperbilirubinemia in newborn children. Measurements are taken in µW/cm2, with a range of 0-1999. This unit of measurement can be directly compared to other units of measurement as described in the user's manual.

Features: Large LCD, Accuracy to ± 5% of full scale, Spectral range of 429-473 nm, and Complete portability.

PM TEST CART

Bio-Tek's PM Test Cart, is specially designed and tested to meet the exacting requirements of biomedical and maintenance personnel. Its all plastic construction prevents electrical problems usually associated with metal carts. The cart provides space for all equipment and has drawers deep enough to store equipment. A keyboard tray is included for use with laptop computers.

The wheels are precision crafted to offer smooth, non-marring gliding over all possible flooring types encountered in today's healthcare setting.

DPM-1B

1% accuracy troubleshooting. The Model DPM-1 is a hand-held pressure generating device, designed for calibration and troubleshooting pneumatic or hydraulic systems. An LCD indicates pressure received externally or pressures manually generated from the internal chamber. To test BP transducers or monitors, simply connect a BP transducer to the luer lock fitting on the DPM-1B and create any series of pressures from -300 to +300 mmHg by turning the thumb wheel.

- **Includes fittings, manual and 1 year warranty**

DPM-II

The DPM-2 Plus Universal Pressure Meter measures positive or negative pressures. Operators use a single mode switch to select one of four measurement parameters. An LCD readout displays pressures received externally from pneumatic or hydraulic sources. Applications include: Opthalmological lasers, Dialysis machines, Automatic tourniquets, Drainage devices, IV pumps, Diagnostic and surgical suction devices, Ventilators, Pressure gauges and many others**. Includes fittings, manual and 1 year**

DPM-III

Convenient, compact pressure and temperature tester. The Universal Biometer is a versatile test instrument able to measure pneumatic or hydraulic pressures (both positive or negative) in a variety of ranges. We've added the ability to measure temperature in degrees, Centigrade or Fahrenheit, with standard YSI 700 Series probes.

- **Includes fittings, temperature probe, manual and 1 year warranty.**

PARABOLIC FLOW ADAPTER

The Bio-Tek Parabolic Flow Adapter Model PFA-1 is a unique hand-held, easy-to-use device enabling users of Bio-Tek Universal Pressure Meters to make critical gas flow measurements in hospitals, factories or service centers. Typical applications include calibrating flows of various gases from wall outlets, breathing machines, ventilators, anesthesia machines, compressors and regulators. The operation of the Model PFA- I is based on the principle that the differential pressure measured across a known restrictor is proportional to the flow of gas through the restrictor.

RF303

Electrosurgery device testing has never been this simple. The wide selection of loads available on board makes the instrument more versatile for the Biomed shop with multiple ESU makes and models. Accurately test the following ESU functions: output power high frequency (HF) leakage and CQM (contact quality monitor).The battery operation provides the portability needed to test ESUs in the OR or doctor's offices. **Features:** Battery powered for completely isolated measurement, 15 user-selectable test loads 50 -750 in 50 steps, Digital display, HF Leakage current measurement, Oscilloscope output
Safety test leads, 4-digit numeric LCD with backlight and power save mode
Includes cables, adpater cables, test leads, manual and 1 year warranty .

JMB BIOMED INTERNATIONAL, INC.
TEL. 305.597.0898 ☎ FAX. 305.718.8819